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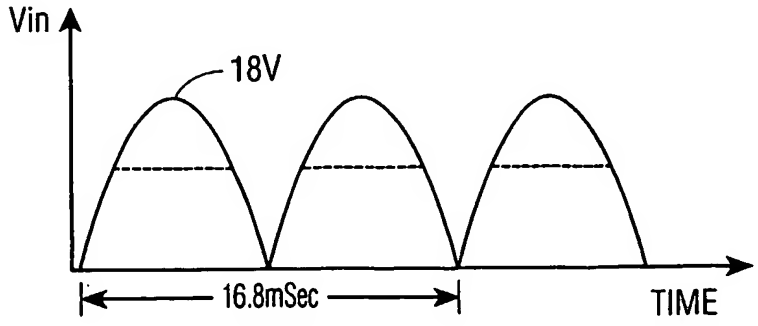
(54) Title: LINE FREQUENCY SWITCHING REGULATOR



(57) Abstract: In a switch mode power supply (SMPS), a mains supply voltage source is coupled to a rectifier for producing an input supply voltage. The rectified input supply voltage is coupled unfiltered to an input of the SMPS. A switching power transistor having a controllable duty cycle is controlled by a duty cycle modulated signal for producing a regulated output supply voltage from the rectified input supply voltage. The periodic waveform of the mains supply voltage is used to establish the timings of the duty cycle modulated signal. In each cycle, current flow is initiated in the transistor, when the transistor is already fully turned on and a voltage developed between its main current conducting terminals is low or close to zero volts. Thereby, power dissipation is, advantageously, small. When the output supply voltage attains the required level the transistor is turned off. Hysteresis is provided for preventing the transistor from turning on again in the same cycle, after it has been turned off.

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